GOVERNMENT OF INDIA
SCIENCE AND TECHNOLOGY
LOK SABHA

UNSTARRED QUESTION NO:2906
ANSWERED ON:03.08.2016
Nano Mission
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Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) the steps being taken by the Government to encourage Nano Science and Technology under the Nano Mission;

(b) the details of the schemes being prepared by the Government to encourage the use of Nano Mission in various sectors and to develop agriculture and industrial sector;

(c) whether the Government proposes to invest a large amount as part of the Nano Mission programme of the science and technology department; and

(d) if so, the benefits likely to accrue therefrom to the country as a whole and scientists in particular?

Answer

MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTER OF STATE IN THE MINISTRY OF EARTH SCIENCES
(SHRI Y.S. CHOWDARY)

(a) Madam, realizing that Nano Science is a knowledge-intensive area of research and that nano technology as an "enabling technology" which influence wide range of products and processes with far reaching implications for national economy and national development, the Government of India launched Nano Science and Technology Initiative (NSTI) in October 2001 to promote Research & Development (R&D) in Nano Science and Technology, almost at the same time as some of the developed nations of the world. On 3rd May 2007, the Government of India launched the Nano Mission as an "umbrella capacity-building programme" for 5 years (Phase-I). Based on the achievements of the Nano Mission, the Government has also approved its continuation in the 12th Plan Period (Phase-II).

(b) The Nano Mission has supported a variety of programmes such as Individual Scientist-Centric Projects, Units on Nano Science, Centres of Nano Technology, Thematic Units of Excellence, Joint Institute-Industry linked Projects, Post-Graduate Programmes and Post-Doctoral-Fellowships, International Collaborations, etc. A whole range of sophisticated characterization facilities have been established. Nano Mission has also enabled assured access of Indian scientists to frontline synchrotron radiation facilities in the world. The Government has also set up an Institute of Nano Science and Technology at Mohali, Punjab.

To further give impetus to scientific research in internationally important, relevant and frontier areas such as Energy (artificial Photo synthesis, hydrogen storage, 2-D Materials, Li-ion batteries, supercapacitors, etc), Health, Agricultural Sensors, Nano Mission has recently recommended funding of 6 Thematic projects. Also, for development of human resource and technology-related programmes in future, the Nano Mission plans to support the following new activities:

â€¢ Nano Science and Technology Associateships and Overseas Visiting Fellowships under Human Resource Development programme.
â€¢ Applied technology development projects targeting different stages of technology development under Nano Applications & Technology Development Programme (NATDP).

(c) Yes, Madam. The Government has accorded high priority to Nano Mission activities as described in Part (a) & (b) above and has allocated a sum of Rs. 400 crores for the 12th Plan period (2012-17) including 95 crores for the financial year 2016-17.
(d) It is widely acknowledged today that Nano Mission gave a fillip to R&D activities in this emerging area in the country as a whole. As a result of focused promotional efforts made by the Government through Nano Mission, and the Nano Science and Technology Initiative earlier, some of the benefits that have accrued to the country are as follows:

? India today is placed 3rd in the world in terms of scientific publications. It was placed 6th in 2011 and 4th in 2012 and it acquired 3rd position in 2013.
? A community of over 2000 researchers in the field of Nano Science & Technology has been built.
? The projects/programmes funded by the Nano Mission alone have so far resulted in 5000 research papers in refereed journals, 186 Patents, 600 PhDs and 22 Post-Doctoral Fellows, 900 M.Tech./M.Sc. Students and training of 3500 other technical manpower.
? Technologies developed under the Nano Mission funded projects are: water purification systems for removal of Arsenic, Iron, pesticides and other contaminants using nanotechnology developed at IIT-Madras. Technology for Fluoride removal is also being developed; antimicrobial nanofinish based on nanosilver for textiles developed by IIT-Delhi; Nano TiO2 based self-cleaning nanofinish for textiles developed at IIT-Delhi; and electrospun nanofibre web based automotive filter developed at IIT-Delhi.
? As a result of the initiatives taken by the Nano Mission, a decent eco-system for competitive R&D has been built in the country.

Indian scientists have now access to advanced characterization and instrumentation facilities including top-of-the-line ultra high resolution aberration corrected transmission electron microscope in the country and synchrotron radiation and neutron sources abroad.

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